

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Ziech et al.

Serial No.: 10/660,239

Group Art Unit: 3616

Filed: 09/11/2003

Examiner: Dunn, D.

For: Tapered Sleeve Suspension Arm Joint

Atty. Dkt. No.: 60,680-543

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

Dear Sir:

Appellants submit the following Appeal Brief pursuant to 37 C.F.R. § 41.37 for consideration by the Board of Patent Appeals and Interferences. Please charge the cost of filing the opening brief, namely \$500.00, as required under 37 C.F.R. § 1.17(c), to deposit account 04-2223. Further, please charge any additional fees required or credit any overpayment to the same deposit account.

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I. REAL PARTY IN INTEREST

Dana Corporation is the assignee of all rights in this invention and is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Neither Appellants, Appellants' representatives, nor Dana Corporation (the assignee) knows of any appeal, interference or judicial proceeding that may be related to, that will directly affect or that will be directly affected by or have a bearing on the Board's decision in the present appeal.

III. STATUS OF CLAIMS

Claims 1-22 are presently pending in this application. Claims 1-14 and 18-20 have been finally rejected. Claims 15-17 and 21-22 are objected to. The rejection of claims 1-14 and 18-20 is being appealed.

IV. STATUS OF AMENDMENTS

No amendment has been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This invention relates to a suspension (18—Figs. 1-3, or 218—Figs. 4-5, or 318—Figs. 6-7) for a vehicle (10—Fig. 1).¹ As recited in independent claim 1, a suspension (18—Figs. 1-3, or 218—Figs. 4-5, or 318—Figs. 6-7) in accordance with the invention includes a control arm (54—Figs. 2-3, or 254—Figs. 4-5, or 354—Figs. 6-7) configured for connection to a frame (12—Fig. 1) of the vehicle (10—Fig. 1) and configured to

¹ See Specification at page 1, lines 4-5, page 2, lines 4-6.

receive an axle (14—Figs. 1, 3, 5, 7).² The control arm (54—Figs. 2-3, or 254—Figs. 4-5, or 354—Figs. 6-7) defines a first sleeve (66—Figs. 2-3, or 266—Figs. 4-5, or 366—Fig. 6) disposed about an axis (78—Figs. 2-3, 5, 7) through which the axle (14—Figs. 1, 3, 5, 7) extends.³ The first sleeve (66—Figs. 2-3, or 266—Figs. 4-5, or 366—Fig. 6) has a radially inner surface (80—Fig. 3, or 280—Fig. 5, or 380—Fig. 7) that tapers.⁴ The suspension (18—Figs. 1-3, or 218—Figs. 4-5, or 318—Figs. 6-7) further includes a second sleeve (56—Figs. 2-3, or 256—Figs. 4-5, or 356—Figs. 6-7) configured to be received within the first sleeve (66—Figs. 2-3, or 266—Figs. 4-5, or 366—Fig. 6) of the control arm (54—Figs. 2-3, or 254—Figs. 4-5, or 354—Figs. 6-7) and about the axis (78—Figs. 2-3, 5, 7).⁵ The second sleeve (56—Figs. 2-3, or 256—Figs. 4-5, or 356—Figs. 6-7) has a radially outer surface (98—Figs. 2-3, or 298—Fig. 5, or 398—Fig. 7) that tapers complementary to the radially inner surface (80—Fig. 3, or 280—Fig. 5, or 380—Fig. 7) of the first sleeve (66—Figs. 2-3, or 266—Figs. 4-5, or 366—Fig. 6).⁶

As recited in independent claim 8, a suspension (18—Figs. 1-3) for a vehicle (10—Fig. 1) in accordance with one embodiment of the invention includes a control arm (54—Figs. 2-3) configured for connection to a frame (12—Fig. 1) of the vehicle (10—

² See Specification at page 4, lines 29-32, page 5, lines 1-17, page 8, line 28 to page 9, line 2, page 9, lines 7-9, page 10, line 28 to page 11, line 2, and page 11, lines 7-9 and Figures 1, 3, 5 and 7.

³ See Specification at page 5, lines 4-6 and 13-16 and Figure 3.

⁴ See Specification at page 5, lines 16-25, page 9, lines 11-21, and page 11, lines 9-24 and Figures 3, 5 and 7.

⁵ See Specification at page 4, lines 29-32, page 6, lines 19-21, page 8, line 34 to page 9, line 2, page 9, lines 23-25, page 10, line 34 to page 11, line 2, page 11, lines 26-28 and Figures 2-7.

⁶ See Specification at page 6, lines 21-23, page 9, lines 26-28, and page 11, lines 29-31 and Figures 3, 5, and 7.

Fig. 1) and configured to receive an axle (14—Figs. 1, 3).⁷ The control arm (54—Figs. 2-3) defines a first sleeve (66—Figs. 2-3) disposed about an axis (78—Figs. 2-3) through which the axle (14—Figs. 1, 3) extends.⁸ The first sleeve (66—Figs. 2-3) has a radially inner surface (80—Fig. 3) that tapers.⁹ The suspension (18—Figs. 1-3) further includes a second sleeve (56—Figs. 2-3) configured to be received within the first sleeve (66—Figs. 2-3) of the control arm (54—Figs. 2-3) and about the axis (78—Figs. 2-3).¹⁰ The second sleeve (56—Figs. 2-3) has a radially outer surface (98—Figs. 2-3) that tapers complementary to the radially inner surface (80—Fig. 3) of the first sleeve (66—Figs. 2-3).¹¹ The suspension (18—Figs. 1-3) further includes a third sleeve (60—Figs. 2-3) configured to be received within the first sleeve (66—Figs. 2-3).¹² The third sleeve (60—Figs. 2-3) abuts against a first axial end of the second sleeve (56—Figs. 2-3).¹³

As recited in independent claim 18, a suspension (18—Figs. 1-3, or 318—Figs. 6-7) in accordance with several embodiment of the invention includes a control arm (54—Figs. 2-3, or 354—Figs. 6-7) configured for connection to a frame (12—Fig. 1) of the vehicle (10—Fig. 1) and configured to receive an axle (14—Figs. 1, 3, 7).¹⁴ The control arm (54—Figs. 2-3, or 354—Figs. 6-7) defines a first sleeve (66—Figs. 2-3 or 366—Fig.

⁷ See Specification at page 4, lines 29-32 and page 5, lines 1-17 and Figure 3.

⁸ See Specification at page 5, lines 4-6 and 13-16 and Figure 3.

⁹ See Specification at page 5, lines 16-25 and Figure 3.

¹⁰ See Specification at page 4, lines 29-32, page 6, lines 19-21 and Figures 2-3.

¹¹ See Specification at page 6, lines 21-23 and Figure 3.

¹² See Specification at page 7, lines 20-21 and Figure 3.

¹³ See Specification at page 7, lines 17-20 and Figure 3.

¹⁴ See Specification at page 4, lines 29-32, page 5, lines 1-17, page 10, line 28 to page 11, line 2, and page 11, lines 7-9 and Figures 1, 3 and 7.

6) disposed about an axis (78—Figs. 2-3, 7) through which the axle (14—figs. 1, 3, 7) extends.¹⁵ The first sleeve (66—Figs. 2-3, or 366—Fig. 6) has a radially inner surface (80—Fig. 3, or 380—Fig. 7) that tapers inwardly away from each axial end of the first sleeve (66—Figs. 2-3, or 366—Fig. 6) towards an axial midpoint of the first sleeve (66—Figs. 2-3, or 366—Fig. 6).¹⁶ The suspension (18—Figs. 1-3, or 318—Figs. 6-7) further includes a second sleeve (56—Figs. 2-3, or 356—Figs. 6-7) configured to be received within the first sleeve (66—Figs. 2-3, or 366—Fig. 6) of the control arm (54—Figs. 2-3, or 354—Figs. 6-7) and about the axis (78—Figs. 2-3, 7).¹⁷ The second sleeve (56—Figs. 2-3, or 356—Figs. 6-7) has a radially outer surface (98—Figs. 2-3, or 398—Fig. 7) that tapers complementary to the radially inner surface (80—Fig. 3, or 380—Fig. 7) of the first sleeve (66—Figs. 2-3, or 366—Fig. 6).¹⁸ Finally, the suspension (18—Figs. 1-3 or 318—Figs. 6-7) includes a third sleeve (58—Figs. 2-3, or 358—Figs. 6-7) configured to be received within the first sleeve (66—Figs. 2-3, or 366—Fig. 7) of the control arm (54—Figs. 2-3, or 354—Figs. 6-7) and about the axis (78—Figs. 2-3, 7).¹⁹ The third sleeve (58—Figs. 2-3, or 358—Figs. 6-7) has a radially outer surface (100—Figs. 2-3, or 400—Fig. 7) that tapers complementary to the radially inner surface (80—Figs. 2-3, or 380—Fig. 7) of the first sleeve (66—Figs. 2-3, or 366—Fig. 6).²⁰ The second and third

¹⁵ See Specification at page 5, lines 4-6 and 13-16 and Figures 3 and 7.

¹⁶ See Specification at page 5, lines 16-25, and page 11, lines 9-24 and Figures 3 and 7.

¹⁷ See Specification at page 4, lines 29-32, page 6, lines 19-21, page 10, line 34 to page 11, line 2, page 11, lines 26-28 and Figures 2-3 and 6-7.

¹⁸ See Specification at page 6, lines 21-23 and page 11, lines 29-31 and Figures 3 and 7.

¹⁹ See Specification at page 4, lines 29-32, page 6, lines 19-21, page 10, line 34 to page 11, line 2, page 11, lines 26-28 and Figures 2-3 and 6-7.

²⁰ See Specification at page 6, lines 21-23 and page 11, lines 29-31 and Figures 3 and 7.

sleeves (56, 58—Figs. 2-3, or 356, 358—Figs. 6-7) are inserted through opposite axial ends of the first sleeve (66—Figs. 2-3, or 366—Fig. 6).²¹

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. The rejection of claims 1-3 and 5-7 as unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,491,314 (“Smith et al.”) in view of U.S. Patent No. 5,005,913 (“Kittle et al.”).

2. The rejection of claims 1-5, 7-14 and 18-20 as unpatentable under 35 U.S.C. § 103(a) over Smith et al. in view of U.S. Patent No. 3,009,747 (“Pitzer”).

VII. ARGUMENTS

A. Rejection of Claims 1-3 and 5-7 Under 35 U.S.C. §103(a) as Unpatentable over U.S. Patent No. 6,491,314 in view of U.S. Patent No. 5,005,913.

Claims 1-3 and 5-7 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,491,314 (“Smith et al.”) in view of U.S. Patent No. 5,005,913 (“Kittle et al.”). Appellants respectfully submit that the rejection of claims 1-3 and 5-7 under 35 U.S.C. § 103(a) is improper because there is no suggestion or motivation to combine the teachings of Smith et al. and Kittle et al. and because the combination of Smith et al. and Kittle et al. fails to disclose or suggest all of the limitations in at least some of the claims.

“Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case.” MPEP § 2141 (emphasis in original).

²¹ See Specification at page 6, lines 31-32 and page 12, lines 2-3 and Figures 2-3 and 6-7.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

MPEP § 2143. Appellants submit that the rejection of claims 1-3 and 5-7 is improper because there is no suggestion or motivation to combine the teachings of Smith et al. and Kittle et al. and because the combination of Smith et al. and Kittle et al. fails to disclose or suggest all of the limitations in at least some of the claims.

1. Rejection of Claims 1-2 and 5-7

Independent claim 1 recites a “suspension” including a “control arm...defining a first sleeve disposed about an axis through which said axle extends, said first sleeve having a radially inner surface that tapers; and a second sleeve...received within said first sleeve...said second sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve.” The Examiner identifies Smith et al. as disclosing a suspension including a suspension control arm defining a first sleeve 542 and a second sleeve 588 received within the control arm sleeve. Office Action of April 6, 2006, p. 2. The Examiner acknowledges that neither sleeve 542, 588 in Smith et al. tapers. *Id.* The Examiner asserts, however, that Kittle et al. discloses complementary tapered sleeves in the form of wheel hub 10 and sleeve 14a (with sleeve 14a forming part of an assembly used to adjust the axial position of the wheel hub 10 along an axle) and that it would have been obvious to modify Smith et al. in view of Kittle et al. “to provide tapered sleeves in order to better secure the axle to the control arm.” Office Action of April 6, 2006, p. 3. Appellants respectfully disagree.

As noted by the Examiner, Smith et al. discloses a suspension in Figures 42-48 that includes a trailing arm 518 coupled to the vehicle frame and an axle 524. The Examiner identifies collar 542 formed at one end of the trailing arm as a "first sleeve" and element 588 as a "second sleeve." Element 588 is described as an "elastomer sheet...made of urethane or rubber sheet material...." Col. 21, lines 1-6. The elastomer sheet 588 allows the axle 524 to "articulate somewhat within the beam collar...." Col. 21, lines 10-11 and 18-19. Smith et al. notes that the purpose of the articulation is to "give flexibility to the beams to accommodate stresses due to roll of the axle." Col. 22, lines 1-3.

The Examiner notes that the elastomer sheet 588 in Smith et al. is not tapered as required by the claims, but asserts that it would be obvious to modify the elastomer sheet 588 to a tapered form as allegedly disclosed in Kittle et al. to "better secure the axle to the control arm." As noted above, however, the purpose of the sheet 588 is to allow articulation of the axle beam relative to the control arm. Accordingly, modifying the suspension of Smith et al. to "better secure the axle to the control arm" would defeat the stated purpose of sheet 588. Appellants therefore submit that one of ordinary skill in the art would not have been motivated to modify the suspension of Smith et al. to taper "sleeves" 542 and 588 and there is no suggestion or motivation for combining the teachings of Smith et al. and Kittle et al.

In the Office Action of April 6, 2006, the Examiner argues that the "elastic properties of the rubber sheet" 588 enable articulation of the axle beam relative to the control arm and therefore, that it is not inconsistent to also taper sheet 588 to "better secure the axle to the control arm". Appellants disagree and submit that such a

configuration runs counter to the explicit teachings of the references the Examiner seeks to combine. The tapered relationship in Kittle et al. is intend to prevent any relative movement between the axle and the wheel hub (and in Applicants' claimed invention between the axle and control arm). Smith et al., in contrast, teach a suspension in which such movement is deliberately allowed. Accordingly, it is unclear why one of ordinary skill in the art would be motivated to combine the teachings of the Smith et al. and Kittle et al. Further, the suspension of Smith et al. already discloses structure for rigidly coupling the trailing arm 518 to the axle 524 and thereby "securing the axle to the control arm." Referring to Figures 43-44 and 48, Smith et al. uses a pair of "beam-axle connectors" 564 on either side of trailing arm 518 to secure arm 518 to axle 524. Each beam axle connector 564 is "rigidly connected" to the axle 524 by compressive force. Col. 20, lines 43-58 and col. 21, lines 12-13. Because Smith et al. already teach structure for rigidly securing the trailing arm 518 to axle 524—and notably structure that is separate from the structure used to allow articulation—it is again unclear why one of ordinary skill in the art would be motivated to modify elastomeric sheet 588 to "better secure the axle to the control arm" as asserted by the Examiner.

Because there is no suggestion or motivation to combine the teachings of Smith et al. and Kittle et al. Appellants submit that the rejection of claims 1-2 and 5-7 under 35 U.S.C. § 103(a) is improper. Accordingly, Appellants request that the rejection of claims 1-2 and 5-7 under 35 U.S.C. § 103(a) be overturned.

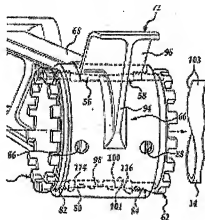
2. Rejection of Claim 3

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith et al. in view of Kittle et al. As set forth above in Section VII.A.1, Appellants

submit that there is no suggestion or motivation to combine the teachings of Smith et al. and Kittle et al. as asserted by the Examiner. Accordingly, Appellants submit that the rejection of claim 3 under 35 U.S.C. § 103(a) is improper. Appellants further submit that the combination of Smith et al. and Kittle et al. fails to teach or disclose all of the limitations recited in claim 3.

Claim 3 recites the additional limitation “wherein said radially inner surface of said first sleeve tapers radially inwardly away from each axial end of said first sleeve towards an axial midpoint of said first sleeve.” As shown in Figure 3, for example, surface 80 of sleeve 66 defines an inner diameter of sleeve 66 that is narrowest at a midpoint of sleeve 66 along axis 78. The diameter is widest at either axial end of sleeve 66 with surface 80 tapering inwardly from *both* ends toward the axial midpoint of sleeve 66.

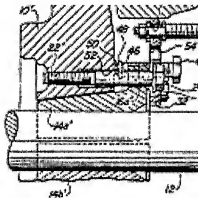
Application Figure 3 (partial view)



As discussed hereinabove, the “sleeves” 542 and 588 in Smith et al. identified by the Examiner do not taper at all. The wheel hub 10 and sleeve 14a in Kittle et al. both taper, but neither “tapers radially inwardly away from each axial end...towards an axial

midpoint..." as recited in claim 3. Rather, the inner surface of wheel hub 10 and the outer surface of sleeve 14a taper continuously from one outboard axial end to the other inboard axial end as shown in Figure 5 of Kittle et al.:

U.S. Patent No. 5,005,913 Figure 5 (partial view)



Because there is no suggestion or motivation to combine the teachings of Smith et al. and Kittle et al. and because the combination of Smith et al. and Kittle et al. fail to disclose or suggest all of the limitations recited in claim 3, Appellants submit that the rejection of claim 3 under 35 U.S.C. § 103(a) is improper. Accordingly, Appellants request that the rejection of claim 3 under 35 U.S.C. § 103(a) be overturned.

B. Rejection of Claims 1-5, 7-14 and 18-20 Under 35 U.S.C. §103(a) as Unpatentable over U.S. Patent No. 6,491,314 in view of U.S. Patent No. 3,009,747.

Claims 1-5, 7-14 and 18-20 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,491,314 ("Smith et al.") in view of U.S. Patent No. 3,009,747 ("Pitzer"). Appellants respectfully submit that the rejection of claims 1-5, 7-14 and 18-20 under 35 U.S.C. § 103(a) is improper because there is no suggestion or motivation to combine the teachings of Smith et al. and Pitzer and because the

combination of Smith et al. and Pitzer fails to disclose or suggest all of the limitations in at least some of the claims.

“Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case.” MPEP § 2141 (emphasis in original).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

MPEP § 2143. Appellants submit that the rejection of claims 1-5, 7-14 and 18-20 is improper because there is no suggestion or motivation to combine the teachings of Smith et al. and Pitzer and because the combinations of Smith et al. and Pitzer fails to disclose or suggest all of the limitations in at least some of the claims.

1. Rejection of Claims 1-5, 7-12, 14, 18 and 20

Independent claims 1, 8 and 18 each recite a “suspension” including a “control arm...defining a first sleeve disposed about an axis through which said axle extends, said first sleeve having a radially inner surface that tapers; and a second sleeve...received within said first sleeve...said second sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve.” The Examiner identifies Smith et al. as disclosing a suspension including a suspension control arm defining a first sleeve 542 and a second sleeve 588 received within the control arm sleeve. Office Action of April 6, 2006, p. 2. The Examiner acknowledges that neither sleeve 542, 588 in Smith et al. tapers. *Id.* The Examiner asserts, however, that Pitzer discloses complementary tapered sleeves in the form of mating rings 20, 1 disposed

between a shaft 28 and journal housing 29, and that it would have been obvious to modify Smith et al. in view of Pitzer "to provide tapered sleeves in order to better secure the axle to the control arm." Office Action of April 6, 2006, p. 3. Appellants respectfully disagree.

As noted by the Examiner, Smith et al. discloses a suspension in Figures 42-48 that includes a trailing arm 518 coupled to the vehicle frame and an axle 524. The Examiner identifies collar 542 formed at one end of the trailing arm as a "first sleeve" and element 588 as a "second sleeve." Element 588 is described as an "elastomer sheet...made of urethane or rubber sheet material..." Col. 21, lines 1-6. The elastomer sheet 588 allows the axle 524 to "articulate somewhat within the beam collar..." Col. 21, lines 10-11 and 18-19. Smith et al. notes that the purpose of the articulation is to "give flexibility to the beams to accommodate stresses due to roll of the axle." Col. 22, lines 1-3.

The Examiner notes that the elastomer sheet 588 in Smith et al. is not tapered as required by the claims, but asserts that it would be obvious to modify the elastomer sheet 588 to a tapered form as allegedly disclosed in Pitzer to "better secure the axle to the control arm." As noted above, however, the purpose of the sheet 588 is to allow articulation of the axle beam relative to the control arm. Accordingly, modifying the suspension of Smith et al. to "better secure the axle to the control arm" would defeat the stated purpose of sheet 588. Appellants therefore submit that one of ordinary skill in the art would not have been motivated to modify the suspension of Smith et al. to taper "sleeves" 542 and 588 and there is no suggestion or motivation for combining the teachings of Smith et al. and Pitzer.

In the Office Action of April 6, 2006, the Examiner argues that the “elastic properties of the rubber sheet” 588 enable articulation of the axle beam relative to the control arm and therefore, that it is not inconsistent to also taper sheet 588 to “better secure the axle to the control arm”. Appellants disagree and submit that such a configuration runs counter to the explicit teachings of the references the Examiner seeks to combine. The tapered relationship in Pitzer (and in Appellants’ claimed invention) is intended to prevent any relative movement between the shaft (or axle) and the journal housing (or control arm). Smith et al., in contrast, teach a suspension in which such movement is deliberately allowed. Accordingly, it is unclear why one of ordinary skill in the art would be motivated to combine the teachings of the Smith et al. and Pitzer. Further, the suspension of Smith et al. already discloses structure for rigidly coupling the trailing arm 518 to the axle 524 and thereby “secure[ing] the axle to the control arm.” Referring to Figures 43-44 and 48, Smith et al. uses a pair of “beam-axle connectors” 564 on either side of trailing arm 518 to secure arm 518 to axle 524. Each beam axle connector 564 is “rigidly connected” to the axle 524 by compressive force. Col. 20, lines 43-58 and col. 21, lines 12-13. Because Smith et al. already teach structure for rigidly securing the trailing arm 518 to axle 524—and notably structure that is separate from the structure used to allow articulation—it is again unclear why one of ordinary skill in the art would be motivated to modify elastomeric sheet 588 to “better secure the axle to the control arm” as asserted by the Examiner.

Because there is no suggestion or motivation to combine the teachings of Smith et al. and Pitzer, Appellants submit that the rejection of claims 1-5, 7-12, 14, 18 and 20

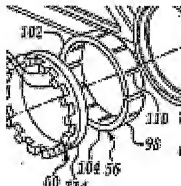
under 35 U.S.C. § 103(a) is improper. Accordingly, Appellants request that the rejection of claims 1-5, 7-12, 14, 18 and 20 under 35 U.S.C. § 103(a) be overturned.

2. Rejection of Claims 13 and 19

Claim 13 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith et al. in view of Pitzer. As set forth above in Section VII.B.1, Appellants submit that there is no suggestion or motivation to combine the teachings of Smith et al. and Pitzer as asserted by the Examiner. Accordingly, Appellants submit that the rejection of claims 13 and 19 under 35 U.S.C. § 103(a) is improper. Appellants further submit that the combination of Smith et al. and Pitzer fails to teach or disclose all of the limitations recited in claims 13 and 19.

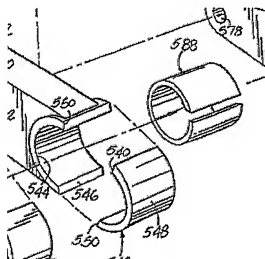
Claims 13 and 19, depend from claims 8 and 18, respectively, and each recite the additional limitation “wherein said second sleeve includes a pair of circumferentially spaced portions, each of said portions having an angular span of about one hundred and eighty degrees.” As shown in Figure 2, for example, sleeve 56 includes two circumferentially spaced portions 102, 104 each having an angular span of about one hundred and eighty degrees:.

Application Figure 2 (partial view)



The Examiner asserts that Smith et al. “discloses the sleeves being a pair of circumferentially spaced portions, each having a span of 180 degrees.” Office Action of April 6, 2006, p. 2. Although this is arguably correct for the “first sleeve” 542 identified by the Examiner, it is incorrect as to the “second sleeve” 588 identified by the Examiner. As shown in Figure 48, sleeve 588 is one piece and spans almost 360 degrees.

U.S. Patent No. 6,491,314 Figure 48 (partial view)




Accordingly, Smith et al. cannot meet the limitation recited in claims 13 and 19 “wherein said *second* sleeve includes a pair of circumferentially spaced portions, each of said portions having an angular span of about one hundred and eighty degrees.” Applicants further note that the sleeves in Pitzer are also each one piece and span almost 360 degrees. See Figures 3-4.

Because there is no suggestion or motivation to combine the teachings of Smith et al. and Pitzer and because the combination of Smith et al. and Pitzer fail to disclose or suggest all of the limitations recited in claims 13 and 19, Appellants submit that the rejection of claims 13 and 19 under 35 U.S.C. § 103(a) is improper. Accordingly,

Appellants request that the rejection of claims 13 and 19 under 35 U.S.C. § 103(a) be overturned.

Respectfully submitted,


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VIII. CLAIMS APPENDIX

1. A suspension for a vehicle comprising:

a control arm configured for connection to a frame of said vehicle and configured to receive an axle, said control arm defining a first sleeve disposed about an axis through which said axle extends, said first sleeve having a radially inner surface that tapers; and

a second sleeve configured to be received within said first sleeve of said control arm and about said axis, said second sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve.

2. The suspension of claim 1 wherein said radially inner surface of said first sleeve tapers inwardly away from a first axial end of said first sleeve.

3. The suspension of claim 2 wherein said radially inner surface of said first sleeve tapers inwardly away from each axial end of said first sleeve towards an axial midpoint of said first sleeve.

4. The suspension of claim 1 further comprising a third sleeve configured to be received within said first sleeve of said control arm and about said axis, said third sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve, said second and third sleeves being inserted through opposite axial ends of said first sleeve.

5. The suspension of claim 1 wherein said second sleeve defines a slot extending from one axial end of said second sleeve to another axial end of said second sleeve.

6. The suspension of claim 1 wherein said second sleeve includes a pair of circumferentially spaced portions, each of said portions having an angular span of about one hundred and eighty degrees.

7. The suspension of claim 1 wherein said second sleeve includes an axially extending slit.

8. A suspension for a vehicle, comprising:

a control arm configured for connection to a frame of said vehicle and configured to receive an axle, said control arm defining a first sleeve disposed about an axis through which said axle extends, said first sleeve having a radially inner surface that tapers;

a second sleeve configured to be received within said first sleeve of said control arm and about said axis, said second sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve; and

a third sleeve configured to be received within said first sleeve, said third sleeve abutting against a first axial end of said second sleeve.

9. The suspension of claim 8 wherein said radially inner surface of said first sleeve tapers inwardly away from a first axial end of said first sleeve.

10. The suspension of claim 9 wherein said radially inner surface of said first sleeve tapers inwardly away from each axial end of said first sleeve towards an axial midpoint of said first sleeve.

11. The suspension of claim 8 further comprising a fourth sleeve configured to be received within said first sleeve of said control arm and about said axis, said fourth sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve, said second and fourth sleeves being inserted through opposite axial ends of said first sleeve.

12. The suspension of claim 8 wherein said second sleeve defines a slot extending from one axial end of said second sleeve to another axial end of said second sleeve.

13. The suspension of claim 8 wherein said second sleeve includes a pair of circumferentially spaced portions, each of said portions having an angular span of about one hundred and eighty degrees.

14. The suspension of claim 8 wherein said second sleeve includes an axially extending slit.

18. A suspension for a vehicle, comprising:

a control arm configured for connection to a frame of said vehicle and configured to receive an axle, said control arm defining a first sleeve disposed about an axis through which said axle extends, said first sleeve having a radially inner surface that tapers inwardly away from each axial end of said first sleeve towards an axial midpoint of said first sleeve;

a second sleeve configured to be received within said first sleeve of said control arm and about said axis, said second sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve; and

a third sleeve configured to be received within said first sleeve of said control arm and about said axis, said third sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve, said second and third sleeves being inserted through opposite axial ends of said first sleeve.

19. The suspension of claim 18 wherein said second sleeve includes a pair of circumferentially spaced portions, each of said portions having an angular span of about one hundred and eighty degrees.

20. The suspension of claim 18 wherein said second sleeve includes an axially extending slit.

IX. EVIDENCE APPENDIX

[NONE]

X. RELATED PROCEEDINGS APPENDIX

[NONE]

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